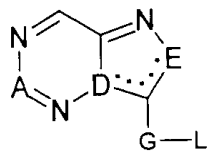
What is claimed is: USA AGR 99/M 208

1. A method for inhibiting the enzyme adenosine monophosphate deaminase (AMPDA) or adenosine deaminase (ADA) wherein a compound of the formula (I), its tautomer, its salt or its water addition product,



(I)

where in formula (I)

A is a nitrogen atom or a group of the formula C-R, where R is as defined further below,

D is a carbon atom or a nitrogen atom,

E a) in the case that D is a nitrogen atom, is a nitrogen atom or a group of the formula C-R^O, where R^O is as defined further below, or

b) in the case that D is a carbon atom, is a group of the formula N-R^O, -O-, -S-, -SO- or -SO_2-,

the line of dots (•••••) from D via an adjacent ring carbon atom to E

is a double bond between the ring carbon atom and E if D is a nitrogen atom (case a), or

is a double bond between the ring carbon atom and D if D is a carbon atom (case b),

R, R^O independently of one another are each a hydrogen atom, amino, hydroxyl, mercapto, cyano, halogen, azido, nitro, SF_5, unsubstituted or substituted aminosulfonyl, acyl, acylamino, acyloxy, acylthio, mono- or di(C_1-C_4)alkylamino, mono- or di(C_3-C_9)cycloalkylamino, (C_1-C_4)alkylthio, (C_2-C_4)alkenylthio, (C_2-C_4)alkynylthio, (C_3-C_9)cycloalkylthio, (C_5-C_9)cycloalkenylthio, (C_1-C_4)alkylsulfinyl, (C_1-C_4)alkylsulfonyl, (C_1-C_4)alkoxy, (C_2-C_4)alkenyloxy, (C_2-C_4)alkynyloxy, (C_3-C_9)cycloalkoxy, (C_5-C_9)cycloalkenyloxy, (C_1-C_4)alkyl, (C_2-C_4)alkenyl, (C_2-C_4)alkynyl, (C_3-C_9)cycloalkyl, (C_5-C_9)cycloalkenyl, (C_1-C_4)alkylaminosulfonyl or di[(C_1-C_4)alkyl]aminosulfonyl, where each of the 23 last-mentioned radicals is unsubstituted or substituted in the hydrocarbon moiety by one or more

radicals selected from the group consisting of halogen, hydroxyl, amino, nitro, formyl, carboxy, cyano, thiocyanato, (C_1-C_4)alkoxy, (C_3-C_9)cycloalkoxy, (C_1-C_4)haloalkoxy, (C_1-C_4)alkylthio, (C_1-C_4)haloalkylthio, mono(C_1-C_4)alkylamino, di(C_1-C_4)alkylamino, (C_3-C_9)cycloalkyl, (C_3-C_9)cycloalkylamino, [(C_1-C_4)alkyl]carbonyl, [(C_1-C_4)alkoxy]carbonyl, aminocarbonyl, mono(C_1-C_4)alkylaminocarbonyl and di(C_1-C_4)alkylaminocarbonyl,

G is a divalent straight-chain saturated or unsaturated hydrocarbon bridge having 1 to 24 carbon atoms in the chain, in which one or more chain members, in each case independently of one another, can be replaced by O, S, NH, (C_1-C_4)alkyl-N or acyl-N or, in the unsaturated case, one or more CH groups can in each case be replaced by a nitrogen atom, where the bridge in question is unsubstituted or

(a) substituted by one or more identical or different radicals selected from the group consisting of halogen, nitro, radicals of the formula R^1 which are different from hydrogen, radicals of the formula $R^2R^3C=$ and radicals of the formula L*, where R^1, R^2, R^3 and L* are as defined further below,

(b) carries two or four substituents, of which in each case two together with the linking bridge moiety form a carbocyclic or heterocyclic ring having 3 to 7 ring atoms, where in the case of a heterocycle the heteroatoms, preferably 1, 2 or 3 heteroatoms, are selected from the group consisting of N, O and S and where the ring in question may also have fused-on rings and is otherwise unsubstituted or substituted by one or more identical or different radicals selected from the group consisting of halogen, nitro, radicals of the formula R^1 which are different from hydrogen, radicals of the formula L* and oxo, where R^1 and L* are as defined further below,

(c) is linked cyclically with L via a second direct bond or via a heteroatom selected from the group consisting of N, O and S,

(d) has two or more substituents from the above groups (a) to (c) together,

L, L* independently of one another are each OR^4, SR^4, CN, tetrazolo, $C(OR^5)(OR^6)(OR^7)$, $-Z^1$, $-O-Z^2$, $-S-Z^2$ or $-NH-Z^2$, where R^4, R^5, R^6, R^7, Z^1 and Z^2 are as defined further below and where L may be attached cyclically to the bridge G via a second direct bond or via a heteroatom selected from the group consisting of N, O and S,

Z^1, Z^2 independently of one another are each the radical of an inorganic or organic oxygen acid of the formula Z^1-OH or Z^2-OH, where the radical is formally formed by removing the hydroxyl group from the acid function,

R^1 to R^7 independently of one another are each a hydrogen atom, (C_1-C_6)alkyl, (C_2-C_6)alkenyl, (C_2-C_6)alkynyl, (C_3-C_9)cycloalkyl, (C_5-C_9)cycloalkenyl, aryl or heterocyclyl, where each of the last-mentioned radicals is unsubstituted or substituted by one or more radicals selected from the group consisting of amino, hydroxyl, mercapto, cyano, halogen, azido, nitro, SF_5, aminosulfonyl, acyl, acylamino, acyloxy, acylthio, $[(C_1-C_4)$alkoxy]carbonyl, mono(C_1-C_4)alkylamino, mono(C_3-C_9)cycloalkylamino, di(C_1-C_4)alkylamino, (C_1-C_4)alkylthio, (C_2-C_4)alkenylthio, (C_2-C_4)alkynylthio, (C_3-C_9)cycloalkylthio, (C_5-C_9)cycloalkenylthio, (C_1-C_4)alkylsulfinyl, (C_1-C_4)alkylsulfonyl, (C_1-C_4)alkoxy, (C_2-C_4)alkenyloxy, (C_2-C_4)alkynyloxy, (C_3-C_9)cycloalkoxy, (C_5-C_9)cycloalkenyloxy, (C_3-C_9)cycloalkyl, (C_5-C_9)cycloalkenyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl and, in the case of cyclic radicals, also by (C_1-C_4)alkyl, (C_2-C_4)alkenyl, (C_2-C_4)alkynyl, (C_1-C_4)haloalkyl, (C_2-C_4)haloalkenyl, (C_2-C_4)haloalkynyl, (C_1-C_4)hydroxyalkyl and (C_1-C_4)alkoxy(C_1-C_4)alkyl,

where heterocyclyl is a heterocyclic saturated, unsaturated or heteroaromatic ring and

where heteroaryl is a heteroaromatic ring

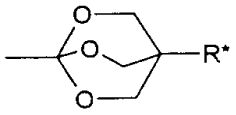
or

R^2, R^3 together with the carbon atom of the group $R^2R^3C=$ are a non-aromatic carbocyclic ring or a heterocyclic ring having 3 to 9 ring atoms and 1 to 4 heteroring atoms selected from the group consisting of N, O and S, which ring is unsubstituted or substituted by one or more radicals selected from the

group consisting of halogen, nitro, hydroxyl, oxo, (C_1-C_4)alkyl, (C_1-C_4)haloalkyl, (C_1-C_4)alkoxy, (C_1-C_4)haloalkoxy and (C_1-C_4)alkylthio, or

R^5, R^6 together with the carbon atom and the adjacent oxygen atoms of the group $C(OR^5)(OR^6)(OR^7)$ are a saturated or unsaturated non-aromatic heterocyclic ring having 4 to 9 ring atoms and 1 to 4 heteroring atoms selected from the group consisting of N, O, P and S, which ring is unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, nitro, hydroxyl, oxo, (C_1-C_4)alkyl, (C_1-C_4)haloalkyl, (C_1-C_4)alkoxy, (C_1-C_4)haloalkoxy and (C_1-C_4)alkylthio, or

the group $C(OR^5)(OR^6)(OR^7)$ together is a bicyclic radical of the formula



in which

R* is (C_1-C_4)alkyl, (C_1-C_4)haloalkyl, (C_1-C_4)alkoxy, (C_1-C_4)haloalkoxy, (C_1-C_4)alkylthio or phenyl which is unsubstituted or substituted by one more radicals selected from the group consisting of halogen, nitro, hydroxyl, oxo, (C_1-C_4)alkyl, (C_1-C_4)haloalkyl, (C_1-C_4)alkoxy, (C_1-C_4)haloalkoxy and (C_1-C_4)alkylthio,

is used as direct or indirect inhibitor of the enzyme.

2. The method as claimed in claim 1, wherein

A is a nitrogen atom or

a group of the formula C-R in which

R is a hydrogen atom, amino, hydroxyl, mercapto, cyano, halogen, azido, nitro, SF_5, aminosulfonyl, (C_1-C_5)alkanoylamino, [(C_1-C_4)alkoxy]carbonylamino, (C_1-C_5)alkanoyl, [(C_1-C_4)-alkoxy]carbonyl, (C_1-C_5)alkanoyloxy, [(C_1-C_4)alkoxy]carbonyloxy, mono(C_1-C_4)alkylamino, mono(C_3-C_6)cycloalkylamino, di(C_1-C_4)alkylamino, (C_1-C_4)alkylthio, (C_1-C_4)alkylsulfinyl, (C_1-C_4)alkylsulfonyl, (C_1-C_4)alkoxy, (C_3-C_4)alkenyloxy, (C_3-C_4)alkynyloxy, (C_3-C_6)cycloalkoxy, (C_5-C_6)cycloalkenyloxy, (C_1-C_4)alkyl, (C_2-C_4)alkenyl, (C_2-C_4)alkynyl, (C_3-C_6)cycloalkyl,

$(C_5$-$C_6)$cycloalkenyl, $(C_1$-$C_4)$alkylaminosulfonyl or di[$(C_1$-$C_4)$alkyl]aminosulfonyl, where each of the 24 last-mentioned radicals is unsubstituted or substituted in the hydrocarbon moiety by one or more radicals selected from the group consisting of halogen, hydroxyl, amino, nitro, formyl, carboxyl, cyano, thiocyanato, $(C_1$-$C_4)$alkoxy, $(C_3$-$C_6)$cycloalkoxy, $(C_1$-$C_4)$haloalkoxy, $(C_1$-$C_4)$alkylthio, $(C_1$-$C_4)$haloalkylthio, mono$(C_1$-$C_4)$alkylamino, di$(C_1$-$C_4)$alkylamino, $(C_3$-$C_6)$cycloalkyl, $(C_3$-$C_6)$cycloalkylamino, [$(C_1$-$C_4)$alkyl]carbonyl, [$(C_1$-$C_4)$alkoxy]carbonyl, aminocarbonyl, mono$(C_1$-$C_4)$alkylaminocarbonyl and di$(C_1$-$C_4)$alkylaminocarbonyl.

3. The method as claimed in claim 1, wherein

G is a divalent straight-chain saturated or unsaturated hydrocarbon bridge having 1 to 8 carbon atoms in the chain, in which one or more CH_2 groups, in each case independently of one another, are replaced by O or S, where the bridge in question is unsubstituted or

(a) substituted by one or more halogen atoms and additionally or alternatively by one or more identical or different radicals selected from the group consisting of nitro, radicals of the formula R^1 which are different from hydrogen, radicals of the formula $R^2R^3C=$ and radicals of the formula L*, where R^1, R^2, R^3 and L* are as defined above,

(b) carries two or four substituents, in each case two of which together with the linking bridge moiety form a carbocyclic ring having 3 to 6 carbon atoms or a heterocyclic saturated or partially unsaturated ring having 3 to 6 ring atoms or a heteroaromatic ring having 5 or 6 ring atoms, where in the case of a heterocycle, the 1, 2 or 3 heteroatoms are selected from the group consisting of N, O and S and where the ring in question may also have a fused-on carbocyclic ring having 4 to 6 ring atoms or a fused-on heterocyclic ring having 4 to 6 ring atoms and 1, 2 or 3 heteroatoms selected from the group consisting of N, O and S, the ring being otherwise unsubstituted or substituted by one or more halogen atoms and additionally or alternatively by one or more identical or different radicals selected from the group consisting of nitro,

radicals of the formula R^1 which are different from hydrogen, radicals of the formula L* and oxo, where R^1 and L* are as defined above,

(c) has substituents from the above groups (a) and (b) together.

4. The method as claimed in claim 1, wherein

L, L* independently of one another are OR^4, SR^4, CN, tetrazolo, $C(OR^5)(OR^6)(OR^7)$, $-Z^1$, $-O-Z^2$, $-S-Z^2$ or $-NH-Z^2$, where R^4, R^5, R^6, R^7, Z^1 and Z^2 are as defined further below and where L may be attached cyclically to G via a second direct bond or via a heteroatom selected from the group consisting of N, O and S,

Z^1 is a radical of the formula $COOR^8$, $CS-OR^8$, $CO-SR^8$, $CS-SR^8$, $CO-NR^9-SO_2-R^8$, $CO-NR^{10}R^{11}$, $CS-NR^{10}R^{11}$, $CO-R^{12}$, $CS-R^{12}$, $SO-R^{12}$, SO_2R^{12}, SO_3R^8, $SO_2NR^{10}R^{11}$, $SO_2NR^9COR^{12}$, $SO_2NR^9COOR^{12}$, $P(=O)(OR^{13})(OR^{14})$, $P(=S)(OR^{13})(OR^{14})$, $P(=O)(R^{15})(OR^{14})$, $P(=O)(OR^{13})(NR^{10}R^{11})$, $P(=O)(NR^{10}R^{11})-(NR^{16}R^{17})$, $P(=S)(OR^{13})(NR^{10}R^{11})$ or $P(=S)(NR^{10}R^{11})(NR^{16}R^{17})$,

Z^2 is a radical of the formula $COOR^8$, $CS-OR^8$, $CO-SR^8$, $CS-SR^8$, $CO-NR^9-SO_2-R^8$, $CO-NR^{10}R^{11}$, $CS-NR^{10}R^{11}$, $CO-R^{12}$, $CS-R^{12}$, $SO-R^{12}$, SO_2R^{12}, SO_3R^8, $SO_2NR^{10}R^{11}$, $SO_2NR^9COR^{12}$, $SO_2NR^9COOR^{12}$, $P(=O)(OR^{13})(OR^{14})$, $P(=S)(OR^{13})(OR^{14})$, $P(=O)(R^{15})(OR^{14})$, $P(=O)(OR^{13})(NR^{10}R^{11})$, $P(=O)(NR^{10}R^{11})-(NR^{16}R^{17})$, $P(=S)(OR^{13})(NR^{10}R^{11})$ or $P(=S)(NR^{10}R^{11})(NR^{16}R^{17})$,

R^1 to R^{17} independently of one another are each a hydrogen atom, (C_1-C_6)alkyl, (C_2-C_6)alkenyl, (C_2-C_6)alkynyl, (C_3-C_9)cycloalkyl, (C_5-C_9)cycloalkenyl, aryl or heterocyclyl, where each of the last-mentioned radicals is unsubstituted or substituted by one or more radicals selected from the group consisting of amino, hydroxyl, mercapto, cyano, halogen, azido, nitro, SF_5, aminosulfonyl, (C_1-C_4)alkanoyl, acylamino, acyloxy, acylthio, $[(C_1-C_4)$alkoxy]carbonyl, mono(C_1-C_4)alkylamino, mono(C_3-C_9)cycloalkylamino, di(C_1-C_4)alkylamino, (C_1-C_4)alkylthio, (C_2-C_4)alkenylthio, (C_2-C_4)alkynylthio, (C_3-C_9)cycloalkylthio, (C_5-C_9)cycloalkenylthio, (C_1-C_4)alkylsulfinyl, (C_1-C_4)alkylsulfonyl, (C_1-C_4)alkoxy, (C_2-C_4)alkenyloxy, (C_2-C_4)alkynyloxy, (C_3-C_9)cycloalkoxy,

(C_5-C_9)cycloalkenyloxy, (C_3-C_9)cycloalkyl, (C_5-C_9)cycloalkenyl, phenyl, substituted phenyl, heteroaryl, substituted heteroaryl and, in the case of cyclic radicals, also by (C_1-C_4)alkyl, (C_2-C_4)alkenyl, (C_2-C_4)alkynyl, (C_1-C_4)haloalkyl, (C_2-C_4)haloalkenyl, (C_2-C_4)haloalkynyl, (C_1-C_4)hydroxyalkyl and (C_1-C_4)alkoxyl(C_1-C_4)alkyl,

where heterocyclyl is a heterocyclic saturated, unsaturated or heteroaromatic ring having 3 to 6 ring atoms and 1 to 3 heteroatoms selected from the group consisting of N, O and S,

where heteroaryl is a heteroaromatic ring having 5 to 6 ring atoms and 1 to 3 heteroatoms selected from the group consisting of N, O and S and

where the substituents for substituted phenyl or substituted heteroaryl are one or more radicals selected from the group consisting of halogen, nitro, (C_1-C_4)alkyl, (C_1-C_4)haloalkyl, (C_1-C_4)alkoxy, (C_1-C_4)haloalkoxy, (C_1-C_4)alkylthio, (C_1-C_4)hydroxyalkyl and (C_1-C_4)alkoxy(C_1-C_4)alkyl,

or

R^2, R^3 together with the carbon atom of the group R^2R^3C= are a non-aromatic carbocyclic ring or a heterocyclic ring having 3 to 6 ring atoms and 1 to 3 heteroring atoms selected from the group consisting of N, O and S, which ring is unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, nitro, hydroxyl, oxo, (C_1-C_4)alkyl, (C_1-C_4)haloalkyl, (C_1-C_4)alkoxy, (C_1-C_4)haloalkoxy and (C_1-C_4)alkylthio, or

R^5, R^6 together with the carbon atom and the adjacent oxygen atoms of the group $C(OR^5)(OR^6)(OR^7)$ are a saturated or unsaturated non-aromatic heterocyclic ring having 3 to 6 ring atoms and 1 to 3 heteroring atoms selected from the group consisting of N, O, P and S, which ring is unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, nitro, hydroxyl, oxo, (C_1-C_4)alkyl, (C_1-C_4)haloalkyl, (C_1-C_4)alkoxy, (C_1-C_4)haloalkoxy and (C_1-C_4)alkylthio, or

R^8, R^9 or R^{10}, R^{11} or R^{13}, R^{14} or R^{14}, R^{15} or R^{16}, R^{17} in each case as a pair and with the atoms of the group defined in each case are a saturated or unsaturated non-aromatic heterocyclic ring having 3 to 9 ring atoms and 1 to 4 heteroring atoms selected from the group consisting of N, O, P and S, which ring is

unsubstituted or substituted by one or more radicals selected from the group consisting of halogen, nitro, (C_1-C_4)alkyl, (C_1-C_4)haloalkyl, (C_1-C_4)alkoxy, (C_1-C_4)haloalkoxy and (C_1-C_4)alkylthio.

5. The method as claimed in claim 1, wherein

G is a divalent straight-chain saturated or unsaturated hydrocarbon bridge having 1 to 8 carbon atoms in the chain in which one or more CH_2 groups, in each case independently of one another, are replaced by O or S,

or

is a bridge of the formula $-W^1$-cycle-W^2-, in which

W^1, W^2 independently of one another are a direct bond, CH_2, CH_2CH_2, OCH_2, SCH_2, $CH_2CH_2CH_2$, CH_2OCH_2, CH_2SCH_2, OCH_2CH_2 or SCH_2CH_2 and

"cycle" is 1,4-cyclohexylene, 1,2-phenylene, 1,3-phenylene, 1,4-phenylene, 1,2-naphthylene, 1,3-naphthylene, 1,4-naphthylene, 1,2-tetrahydronaphthylene, 1,3-tetrahydronaphthylene, 1,4-tetrahydronaphthylene, 1,2-cyclopentylene, 1,3-cyclopentylene, 1,2-cyclohexylene, 1,3-cyclohexylen, 1,4-cyclohexylene, tetrahydrofuran-2,5-diyl (oxolane), tetrahydrothiophene-2,5-diyl, 2,5-dihydrofuran-2,5-diyl or 2,5-dihydrothiophene-2,5-diyl,

where the bridge in question is unsubstituted or substituted by one or more halogen atoms and additionally or alternatively by one or more identical or different radicals selected from the group consisting of radicals of the formula R^1 which are different from hydrogen, radicals of the formula $R^2R^3C=$ and radicals of the formula L*, where R^1, R^2, R^3 and L* are as defined above or further below, or

is additionally or alternatively attached cyclically to L via a second direct bond or via a heteroatom selected from the group consisting of N, O and S, and

R^1 to R^{17} indendently of one another are each a hydrogen atom, (C_1-C_4)alkyl, (C_2-C_4)alkenyl, (C_2-C_4)alkynyl, (C_3-C_6)cycloalkyl, (C_5-C_6)cycloalkenyl, phenyl or heterocyclyl, where each of the last-mentioned radicals is unsubstituted or substituted by one or more radicals selected from the group consisting of amino, hydroxyl, mercapto, cyano, halogen, azido, nitro, SF_5, aminosulfonyl,

$(C_1$-$C_4)$alkanoyl, $(C_1$-$C_4)$alkanoylamino, benzoylamino, $(C_1$-$C_4)$alkanoyloxy, $(C_1$-$C_4)$alkanoylthio, [$(C_1$-$C_4)$alkoxy]carbonyl, mono$(C_1$-$C_4)$alkylamino, di$(C_1$-$C_4)$alkylamino, $(C_1$-$C_4)$alkylthio, $(C_3$-$C_4)$alkenylthio, $(C_3$-$C_4)$alkynylthio, $(C_1$-$C_4)$alkylsulfinyl, $(C_1$-$C_4)$alkylsulfonyl, $(C_1$-$C_4)$alkoxy, $(C_3$-$C_4)$alkenyloxy, $(C_3$-$C_4)$alkynyloxy, $(C_3$-$C_9)$cycloalkoxy, $(C_3$-$C_9)$cycloalkyl, phenyl, substituted phenyl, heteroaryl, substituted heteroaryl and, in the case of cyclic radicals, also by $(C_1$-$C_4)$alkyl, $(C_2$-$C_4)$alkenyl, $(C_2$-$C_4)$alkynyl, $(C_1$-$C_4)$haloalkyl, $(C_2$-$C_4)$haloalkenyl, $(C_2$-$C_4)$halo-alkynyl, $(C_1$-$C_4)$hydroxyalkyl and $(C_1$-$C_4)$alkoxyl$(C_1$-$C_4)$alkyl,

where heterocyclyl is a heterocyclic saturated or unsaturated ring having 3 to 6 ring atoms or a heteroaromatic ring having 5 or 6 ring atoms and in each case 1 to 3 heteroatoms selected from the group consisting of N, O and S and where heteroaryl is a heteroaromatic ring having 5 to 6 ring atoms and 1 to 3 heteroatoms selected from the group consisting of N, O and S and

where the substituents for substituted phenyl or substituted heteroaryl are one or more substituents selected from the group consisting of halogen, nitro, $(C_1$-$C_4)$alkyl, $(C_1$-$C_4)$haloalkyl, $(C_1$-$C_4)$alkoxy, $(C_1$-$C_4)$haloalkoxy, $(C_1$-$C_4)$alkylthio, $(C_1$-$C_4)$hydroxyalkyl and $(C_1$-$C_4)$alkoxy$(C_1$-$C_4)$alkyl.

6. The method as claimed in claim 1, wherein

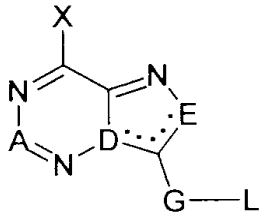
L is hydroxyl, carboxyl, [$(C_1$-$C_4)$alkoxy]carbonyl, $CONH_2$, [$(C_1$-$C_4)$alkylamino]carbonyl, [$(C_1$-$C_4)$alkylsulfonylamino]carbonyl, [$(C_1$-$C_4)$haloalkylsulfonylamino]carbonyl, [cyano$(C_1$-$C_4)$alkylsulfonyl-amino]carbonyl, $(C_1$-$C_4)$alkylsulfonylamino, $(C_1$-$C_4)$haloalkylsulfonylamino, cyano-$(C_1$-$C_4)$alkylsulfonylamino, $(C_1$-$C_5)$alkanoyloxy, benzoyloxy, [$(C_1$-$C_4)$alkoxy]carbonyloxy, [$(C_1$-$C_4)$alkylamino]carbonyloxy, $(C_1$-$C_4)$alkoxy, $(C_1$-$C_4)$alkylthio, $(C_1$-$C_4)$hydroxyalkoxy, $SO_2NHCONH_2$, $(C_1$-$C_5)$alkanoylamino-sulfonyl, [$(C_1$-$C_4)$haloalkyl]carbonylaminosulfonyl, [$(C_1$-$C_4)$alkoxy]-carbonylaminosulfonyl, [$(C_1$-$C_5)$haloalkoxy]carbonylaminosulfonyl, SO_2NH_2, di[$(C_1$-$C_4)$alkyl]aminosulfonyl, $P(=O)(OH)_2$, $P(=S)(OH)_2$, $P(=O)(OR')_2$ or $P(=O)(OH)(OR')$, where in the two last-mentioned formulae R', in each case independently of any other radicals R', is $(C_1$-$C_4)$alkyl, $(C_1$-$C_4)$haloalkyl,

(C_1-C_4)hydroxyalkyl, (C_1-C_4)alkanoyl(C_1-C_4)alkyl, (C_1-C_4)alkanoyloxy(C_1-C_4)alkyl or phenyl.

7. A compound of the formula (I), its tautomers, its salts or its water addition product as defined in claim 1, except for the compound of the formula (I) in which A = CH, D = C, E = NH and G-L = β-D-ribofuranosyl.

8. A process for preparing a compound of the formula (I) or a salt thereof as claimed in claim 1, which comprises

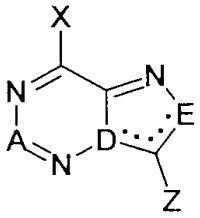
a) reducing a compound of the formula (II)



(II)

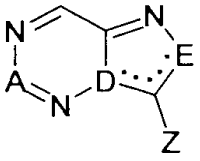
in which X is a leaving group to the compound of the formula (I) or

b) reducing a compound of the formula (III)



(III)

in which X is a leaving group and Z is a precursor of the radical G-L to the compound of the formula (III')

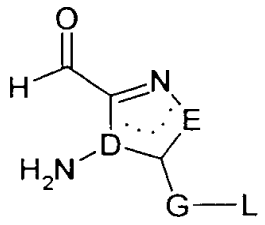


(III')

in which Z is as defined in formula (III), and then modifying the compound (III) at the group Z such that the compound (I) is obtained,

c) modifying a compound of the formula (III') in which Z is a precursor of the radical G-L at the group Z such that the compound (I) is obtained, or

d) if A is a group of the formula C-R, cyclizing a compound of the formula (III")



(III")

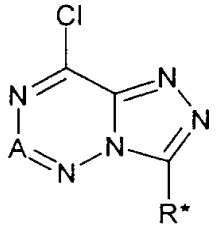
with a compound of the formula (III"')

$H_2N - A = NH$ (III"')

in which A is a group C-R to give the compound of the formula (I),

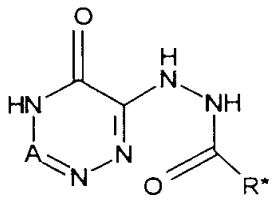
where the symbols A, D, E, G, L and R in the formulae (II), (III), (III'), (III") and (III"') are as defined in formula (I), unless specifically defined otherwise.

9. A process for preparing a compound of the formula (V)



(V)

in which R* = Z or G-L and A, G and L are as defined in formula (I) according to claim 1 and Z is a precursor of the radical G-L, which comprises reacting a compound of the formula (IV)

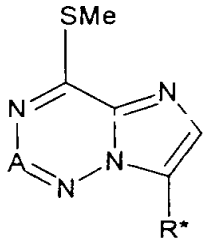


(IV)

in which A and R* are as defined in formula (V)
with a chlorinating agent and cyclizing it to give the compound of the formula (III-1).

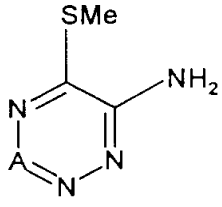
10. A compound of the formula (V) as set forth in claim 9.

11. A process for preparing a compound of the formula (VI)

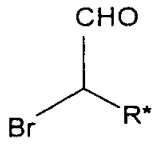


(VI)

in which R* = Z or G-L and A, G and L are as defined in formula (I) according to claim 1 and Z is a precursor of the radical G-L,
which comprises condensing and cyclizing a compound of the formula (VII)
with a compound of the formula (VIII)



(VII)



(VIII)

where A and R* in the formulae (VII) and (VIII) are as defined in formula (VI).

12. A compound of the formula (VI) as set forth in claim 11.

13. A herbicidal or plant-growth-regulating composition, comprising one or more compounds of the formula (I), their salts, their tautomers or their water addition products as set forth in claim 1 and formulation auxiliaries which are customary in crop protection.

14. A method for controlling harmful plants or for regulating the growth of plants, which comprises applying an effective amount of one or more compounds of the formula (I), their salts, their tautomers or their water addition products as set forth in claim1 onto the plants, parts of plants, plant seeds or the area under cultivation.

15. A method for controlling harmful plants and for regulating the growth of plants which comprises using a compound of the formula (I), its salt, its tautomer or its water addition product as set forth in claim 1 as herbicide or plant growth regulator.

16. The method as claimed in claim 15, wherein the compound of the formula (I), its salt, its tautomer or its water addition product is employed for controlling harmful plants or for regulating the growth in crops of useful or ornamental plants.

17. The method as claimed in claim 16, wherein the crop plants are transgenic crop plants.

18. A pharmaceutical, comprising a compound of the formula (I), its salt, its tautomer or its water addition product as set forth in claim 1.

19. The pharmaceutical as claimed in claim 18 for treating diseases which can be treated by inhibiting the enzyme AMPDA or ADA.

20. The pharmaceutical as claimed in claim 19 for treating diseases of the type circulatory disorders or oxygen deficiencies.

21. A process for preparing a pharmaceutical composition for treating diseases which can be treated by inhibiting the enzyme AMPDA or ADA, which comprises formulating a compound of the formula (I), its salt, its tautomer or its water addition product, as defined in claim 1 into a pharmaceutical composition analogously to common methods.